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### Deposited in DRO:

02 March 2016

### Version of attached file:

Accepted Version

### Peer-review status of attached file:

Peer-reviewed

### Citation for published item:

Tsai, J.L. and Ang, J.Y.Z. and Blevins, E. and Goernandt, J. and Fung, H.H. and Jiang, D. and Elliott, J. and Kolzer, A. and Uchida, Y. and Lee, Y.-C. and Lin, Y. and Zhang, X. and Govindama, Y. and Haddouk, L. (2016) 'Leaders' smiles reflect cultural differences in ideal affect.', *Emotion*, 16 (2). pp. 183-195.

### Further information on publisher's website:

<http://dx.doi.org/10.1037/emo0000133>

### Publisher's copyright statement:

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### Additional information:

Published online 11 January 2016

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Manuscript in press, *Emotion*.

## Leaders' Smiles Reflect Cultural Differences in Ideal Affect

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Abstract

Cultures differ in the emotions they teach their members to value ("ideal affect"). We conducted three studies to examine whether leaders' smiles reflect these cultural differences in ideal affect. In Study 1, we compared the smiles of top ranked American and Chinese government leaders, chief-executive-officers (CEOs), and university presidents in their official photos. Consistent with findings that Americans value excitement and other high arousal positive states more than Chinese, American top ranked leaders (N = 98) showed more excited smiles than Chinese top ranked leaders (N = 91) across occupations. In Study 2, we compared the smiles of winning vs. losing political candidates and higher vs. lower ranking CEOs and university presidents in the US and Taiwan/China. American leaders (N = 223) showed more excited smiles than Taiwanese/Chinese leaders (N = 266), regardless of election outcome or ranking. In Study 3, we administered self-report measures of ideal affect in college student samples from 10 different nations (N = 1,267) and then eight years later, coded the smiles that legislators from those nations showed in their official photos (N = 3,372). The more nations valued excitement and other high arousal positive states, the more their leaders showed excited smiles; similarly, the more nations valued calm and other low arousal positive states, the more their leaders showed calm smiles. These results held after controlling for national differences in GDP per capita, democratization, and human development. Together, these findings suggest that leaders' smiles reflect the affective states valued by their cultures.

## Introduction

Cultures differ in the affective states they teach their members to value. For instance, European Americans report valuing excitement, enthusiasm, and other high arousal positive states more than Hong Kong Chinese, whereas Hong Kong Chinese value calm, peacefulness, and other low arousal positive states more than European Americans (Tsai, Knutson, & Fung, 2006). These differences in ideal affect, or the affective states that people value and ideally want to feel, are reflected in and reinforced by widely distributed products such as children's storybooks (Tsai, Louie, Chen, & Uchida, 2007). Here we examine whether cultural differences in ideal affect are reflected in the widely distributed official photos of leading public figures. Prior to describing our studies, we present the theoretical framework motivating this research, Affect Valuation Theory.

### **Affect Valuation Theory: The Importance of Ideal Affect**

AVT distinguishes how people actually feel ("actual affect") from how they ideally want to feel ("ideal affect;" Tsai, 2007). Whereas actual affect refers to a response or an outcome, ideal affect represents a goal, or a desired state that people consciously or unconsciously strive to achieve. Thus, whereas actual affect provides individuals with a sense of how they are feeling, ideal affect provides individuals with a way to interpret and evaluate the desirability of their own feelings and the feelings of others. Indeed, in several studies, we have observed that actual and ideal affect are distinct constructs, and that people ideally want to feel more positive and less negative than they actually feel (e.g., Koopmann-Holm & Tsai, 2014; Tsai, Knutson, & Fung, 2006; Tsai, Miao, Seppala, Fung, & Yeung, 2007).

AVT also predicts that cultural factors shape ideal affect more than actual affect. In the same way that culture teaches people which behaviors are desirable, moral, and virtuous (Shweder, 2003), culture teaches people which emotional states are desirable, moral, and virtuous. Although culture also shapes how people actually feel, people's temperament, regulatory abilities, and immediate circumstances strongly influence their actual affect (e.g., Diener & Lucas, 1999). Thus, AVT predicts that culture shapes how people want to feel even

more than how they actually feel. As mentioned above, and in support of this hypothesis, across a series of studies, European Americans consistently valued excitement, enthusiasm and other high arousal positive states [HAP] more than Hong Kong Chinese, while Hong Kong Chinese valued calm, peacefulness, and other low arousal positive states [LAP] more than European Americans. These differences held after controlling for how much people actually felt these emotions (actual HAP and actual LAP). In contrast, cultural differences in actual affect were less pronounced and disappeared after controlling for measures of temperament (i.e., extraversion and neuroticism) (Tsai, Knutson, & Fung, 2006).

We propose that these cultural differences in ideal affect are reflected in widely distributed cultural products. Anthropologists Kroeber and Kluckhohn (1952) defined culture as shared ideas that are instantiated in widely distributed products, practices, and institutions. Thus, one way cultural psychologists have documented the prevalence of particular ideas is by comparing the content of cultural products such as popular song lyrics (Snibbe & Markus, 2005), magazine advertisements (Kim & Markus, 1999), comic books (Cohn, Taylor-Weiner, & Grossman, 2012), art and photography (Masuda, Gonzalez, Kwan, and Nisbett, 2008), and sympathy cards (Koopman-Holm & Tsai, 2014). For instance, a meta analysis revealed that differences between Western and East Asian cultures in individualism-collectivism were more pronounced when comparing the content of Western and East Asian cultural products than when comparing Western and East Asian responses to self-report questionnaires (Morling & Lamoreaux, 2008). Along these lines, we observed that the characters in bestselling American children's storybooks contained more excited and fewer calm smiles than those in bestselling Taiwanese Chinese children's storybooks (Tsai, Louie, Chen, & Uchida, 2007).

But are cultural differences in ideal affect reflected in other cultural products as well? To answer this question, we examined the emotional expressions of leading public figures in their official photos on their official websites. Public figures may consciously or unconsciously show the emotions that are valued by their cultures when having their photos taken. In addition, they

or their advisers may consciously or unconsciously choose the photos that show the culturally valued emotions to post on official websites, flyers, etc. Thus, we predict that the more a nation values HAP, the more likely that nation's public leaders will be to show excited smiles in their official photos; similarly, the more that a nation values LAP, the more likely that nation's leaders will be to show calm smiles in their official photos. Although we propose that these differences are not specific to leaders, we thought examining leaders' emotional expressions would be a good place to start because leaders are often viewed as embodying cultural ideals.

### **Previous Research on Emotional Expression in Official Photos**

Surprisingly few studies, however, have compared the emotional content of official photos across cultures, despite an increasingly large body of research examining the links between naive judgments of people's traits (e.g., competence, trustworthiness) based on their official photos and a variety of significant, real-world outcomes including voting outcomes and company profits (e.g., Todorov, Mandisodza, Goren, & Hall, 2005; Rule & Ambady, 2008) in the US and other cultures (Rule et al., 2010; Rule, Ishii, & Ambady, 2011). Other studies have used more objective coding systems such as the Facial Action Coding System (FACS) to examine links between the emotional expressions of individuals in their photos and real world outcomes including marriage, divorce, and longevity (e.g., Abel & Kruger, 2010; Harker & Keltner, 2001; Hertenstein et al., 2009). The authors of these studies suggest that the emotional expressions that people show in their photos reflect their individual traits. While this may be true, because most of these studies focus on American samples, it remains unknown whether the emotional expressions in official photos also reflect cultural ideals. One exception is Horiuchi, Komatsu, & Nakaya (2012), which compared the official photos of Japanese and Australian lower house legislators using a face recognition program, and found that Japanese smiled less intensely than did Australian politicians. The authors hypothesized that these differences might reflect different cultural values placed on smiling, but they did not empirically test this hypothesis. Here

we tested the prediction that cultural differences in officials' smiles vary as a function of cultural differences in ideal affect.

### **The Present Research**

We tested our predictions in three studies. In Studies 1 and 2, we focused on American and Chinese contexts, as in our previous work. Specifically, we compared the emotional expressions of American and Chinese top leaders in government, business, and academia (Study 1) to examine whether cultural differences in ideal affect were reflected in official photos of public figures across a variety of occupational domains. In Study 2, we examined whether American-Chinese differences in emotional expressions would hold for leaders that differed in rank. Finally, in Study 3, we broadened our analysis to include public figures across a variety of nations, and examined whether national ideal affect was related to the emotional expressions of government leaders in their official photos, above and beyond other measures of affect and other factors that vary across nations and that have been linked to national well-being (i.e., GDP per capita, democratization, and development).

#### **Study 1: Do American Leaders Show More Excited and Fewer Calm Smiles Than Chinese Leaders in Government, Business, and Academic Settings?**

In Study 1, we compared the types of smiles that were expressed in the official photos of top ranking government leaders, chief executive officers (CEOs), and university presidents in the United States and China. We examined whether previously observed cultural differences in the occurrence of excited and calm smiles would emerge, and whether the magnitude of these cultural differences would vary as a function of occupation. Specifically, we predicted that American government leaders, CEOs, and university presidents would show more excited and fewer calm smiles than Chinese government leaders, CEOs, and university presidents (Hypothesis 1). We also predicted that these cultural differences might be more pronounced for government leaders than for CEOs and university presidents (Hypothesis 2) because

government leaders are more visible and in charge of a larger segment of their national population, and therefore, may mirror cultural ideals more than CEOs and university presidents.

### Study 1 Method

**Photo selection.** We conducted our analyses on the official photos of 98 US leaders (15 government officials, 39 CEOs, 44 university presidents) and 91 Chinese leaders (27 government officials, 23 CEOs, 41 university presidents) taken from their official websites. The vast majority of photos were “posed” (i.e., leaders were central figures in the photos and were not speaking or doing something other than looking directly at the camera), and therefore, we focused on posed photos. In rare cases when there were multiple photos of leaders on their websites, we coded the first photo that appeared on the website.

*Government officials.* During the summer of 2012, photos of the 17 highest ranking government officials in the US (i.e., the President and his Cabinet members) and 27 highest ranking government leaders in China (i.e., the Paramount Leader and members of the Politburo) were downloaded from the official government website (the one in the nation’s native language). Of the US government officials, photos of 15 government leaders were coded (photos of 2 government leaders were not posed). Of the Chinese government officials, photos of all 27 government leaders were coded.

*CEOs.* We identified all US and Chinese companies in the Fortune Global 500 (<http://money.cnn.com/magazines/fortune/global500/2011>). Of the 133 US and 61 Chinese companies listed in the Fortune Global 500, we selected approximately half of the top companies (by revenue) from each nation (50 US companies, 31 Chinese companies). Photos of the CEOs were obtained from their biography or message pages on their company’s websites (the one in the nation’s native language). Of the US companies, photos of 39 CEOs were coded (photos of 11 CEOs were not available). Of the Chinese companies, photos of 23 CEOs were coded (photos of 8 CEOs were not available).



*University presidents.* We selected the 50 highest ranking US and the 50 highest ranking Chinese undergraduate universities based on rankings from US News & World Report (<http://colleges.usnews.rankingsandreviews.com/best-colleges>) and a comparable Chinese website (<http://gaokao.com/e/20120109/4f0a8e1773aa0.shtml>), respectively. Photos of the university presidents were obtained from presidents' biography or message pages on the university websites (the one in the nation's native language). Of the US universities, photos of 44 university presidents were coded (the photo of 1 university president was not available; photos of 5 university presidents were not posed). Of the Chinese universities, photos of 41 university presidents were coded (photos of 8 university presidents were not available; the photo of 1 university president was not posed).

**Coding.** Photos were coded using the Facial Action Coding System (FACS) (Ekman, Friesen, & Hager, 1978), a system used to measure minute facial muscle movement, or action units (AU). Although all possible AUs were coded in terms of occurrence (presence vs. absence), because of our hypotheses, we focused on those that were reliably coded from the photos and that are associated with "excited" and "calm" expressions (AUs 6 [eye corner wrinkle], 12 [lip corner puller], 25 [lips part], 26 [jaw open]), as illustrated in Figure 1. These AUs also represented the majority of facial AUs in the photos. Two independent coders, one of whom was blind to study hypotheses, coded the photos; reliability was based on a separate set of 118 posed photos of government officials and CEOs from countries not included in the actual study (i.e., South Korea, Russia, Turkey, Singapore, Switzerland). Cohen's Kappa values range from 0.61-0.98 (Mean = .77, SD = .15) across the different AUs. For each photo, we examined the occurrence (0 = no occurrence, 1 = occurrence) of "any" smile [AU 12], "calm" or closed smiles [AU 6 + 12, but no 25 or 26], and "excited" or open smiles [AU 6 + 12 + 25 or 6 + 12 + 25 + 26] (results for individual AUs are available upon request).<sup>1</sup>

Although previous researchers have used FACS to code static expressions in the absence of a neutral comparison (e.g., Harker & Keltner, 2001), technically FACS requires a

neutral face comparison for coding. Because we did not have access to leaders' neutral faces, we also analyzed the official photos in this study using Emotient Analytics and Noldus Face Reader, two facial coding programs that are based on FACS but are normed on different ethnic groups, and therefore adjust for possible ethnic differences in neutral faces. Using these programs, we replicated the findings presented below, suggesting that our coding was valid, even without having leaders' neutral faces as a comparison (these data are available upon request).

### Study 1 Data Analyses and Results

Because the occurrences of any smile, calm smiles, and excited smiles were dichotomous variables (0 = no occurrence, 1 = occurrence), we conducted multiple logistic regression analyses. Nation (0 = China, 1 = US) and occupation (0 = government, 1 = business, 2 = academics) were both treated as between-subjects factors. First, we examined whether Nation and Occupation predicted the occurrence of any smile. The model was statistically significant,  $\chi^2(5) = 52.33, p < .001$ , and Nation was a significant predictor of the occurrence of any smile (US Any Smile = .94, China Any Smile = .55,  $B = 1.61, SE = .75, Wald = 4.57, p = .033$ ). Leaders in the US were 5.00 times (odds ratio, 95% CI [1.14, 21.86]) more likely to express any type of smile than were leaders in China. Occupation was not a significant predictor (Wald = 1.72,  $p = .42$ ), and neither was the Nation X Occupation interaction (Wald = .17,  $p = .92$ ).<sup>2</sup> Thus, top American leaders were more likely to smile in their official photos compared to top Chinese leaders, regardless of their occupation.

Second, we examined whether Nation and Occupation predicted the occurrence of excited smiles. Again, logistic regression analyses revealed that the model was statistically significant,  $\chi^2(5) = 32.99, p < .001$ . Again, Nation was a significant predictor of the occurrence of excited smiles (US Excited Smile = .40, China Excited Smile = .07,  $B = 1.83, SE = .92, Wald = 4.00, p = .046$ ), with top leaders in the US being 6.25 times (odds ratio, 95% CI [1.04, 37.67])

more likely to show excited smiles in their official photos compared to top leaders in China (Figure 2). Occupation was not a significant predictor of excited smiles (Wald = .38,  $p = .83$ ), and neither was the Nation X Occupation interaction (Wald = 1.00,  $p = .61$ ). Thus, top American leaders were more likely to show excited smiles in their official photos compared to top Chinese leaders, regardless of occupation.

Third, we examined whether nation, occupation, and the interaction between nation and occupation predicted the occurrence of calm smiles. Although this overall model was significant,  $\chi^2(5) = 11.07$ ,  $p = .050$ , none of the individual predictors were significant (Figure 2).

In sum, top ranked American leaders were more likely to smile in their official photos than top ranked Chinese leaders across government, business, and academic settings. Consistent with Hypothesis 1, top ranked leaders in the US were more likely to show excited smiles when compared to top ranked leaders in China. Contrary to Hypothesis 1, however, there were no cultural differences in the occurrence of calm smiles. Contrary to Hypothesis 2, cultural differences in the occurrence of excited smiles did not vary as a function of occupation: top ranked American leaders showed more excited smiles than top ranked Chinese leaders across government, business, and academic settings.

### **Study 2: Do Cultural Differences in Leaders' Smiles Vary By Ranking?**

Consistent with previous findings and as predicted, top ranked American government leaders, CEOs, and university presidents showed more excited smiles in their official photos compared to their Chinese counterparts. Do these findings hold for lower ranked leaders? On the one hand, higher ranked leaders may be more likely to reflect the cultural ideal than lower ranked leaders because they or their advisers may have more implicit or explicit knowledge about cultural ideals. On the other hand, if cultural differences in ideal affect are as pervasive as we predict, cultural differences in ideal affect should be related to leaders' expressions regardless of their ranking. To test these hypotheses, Study 2a compared winning and losing political candidates in Taiwan and the United States (we could not conduct such a study in

China because leaders are not elected there), and Study 2b compared the higher ranked CEOs and university presidents from the United States and China from Study 1 with an additional sample of lower ranked CEOs and university presidents from the US and China.<sup>3</sup> We predicted that regardless of rank, American leaders would show more excited and fewer calm smiles than Chinese leaders (Hypothesis 1); however, the magnitude of these differences would be greater for winners (vs. losers) (Study 2a) and for higher (vs. lower) ranked CEOs and university presidents (Study 2b) (Hypothesis 2).

### **Study 2a: Elected Government Officials in the US and Taiwan**

#### **Method**

**Photo selection.** Candidates who ran for office in the 2012 US Senate (N = 68) and the Taiwanese Legislative Yuan (N = 154) were identified in Winter, 2012. Photos of the US political candidates were obtained from their personal campaign or social media page (i.e., Facebook or Twitter), while photos of the Taiwanese political candidates were obtained from the government's official Central Election Commission website. Of the US political candidates, 53 had photos that were coded and analyzed (2 candidates did not have photos; 13 candidates had photos that were not posed). Of the Taiwanese political candidates, all 154 had photos that were coded and analyzed.

**Coding.** As in Study 1, photos were coded using FACS, and scored for the occurrence of any smile, an excited smile, and a calm smile (Ekman et al., 1978) by the same coders as in Study 1. As in Study 1, we coded the photos using Noldus Face Reader, and replicated the results described below (these results, as well as results for individual AUs, are available upon request).

**Rank.** The 2012 election outcome (i.e., whether a politician won or lost) was recorded for each candidate.

#### **Study 2a: Data Analyses and Results**

Because the occurrence of any smile, calm smiles, and excited smiles were dichotomous (0 = no occurrence, 1 = occurrence), we again conducted logistic regression analyses. Nation (0 = Taiwan, 1 = US), Election Outcome (0 = loss, 1 = win), and the Nation X Election Outcome interaction were included in the regression model.

We first examined whether Nation and Election Outcome predicted the occurrence of any smile. While the overall model was significant,  $\chi^2(3) = 11.48$ ,  $p = .009$ , none of the individual predictors reached significance.

Next, we examined whether Nation and Election Outcome predicted the occurrence of excited and calm smiles. Analyses indicated that the overall model predicting excited smiles was significant,  $\chi^2(3) = 39.72$ ,  $p < .001$ . Nation significantly predicted candidates' expression of excited smiles (US Excited Smile = .49, Taiwan Excited Smile = .08,  $B = 1.86$ ,  $SE = .53$ , Wald = 12.35,  $p < .001$ ), with US political candidates being 6.44 times (odds ratio, 95% CI [2.28, 18.20]) more likely to express an excited smile than Taiwanese political candidates. Election outcome was not a significant predictor of excited smiles ( $B = -.40$ ,  $SE = .59$ , Wald = .45,  $p = .502$ ), and neither was the Nation X Election Outcome interaction ( $B = 1.08$ ,  $SE = .82$ , Wald = 1.76,  $p = .184$ ).

Finally, we conducted similar analyses for calm smiles. The overall model predicting calm smiles was not significant,  $\chi^2(3) = 2.66$ ,  $p = .448$ .

In sum, consistent with Hypothesis 1 and Study 1 findings, Study 2 findings suggest that at least in the domain of government, US leaders showed more excited smiles than Taiwanese ones, regardless of rank (operationalized as election outcome). However, contrary to Hypothesis 1, but consistent with Study 1 findings, there were no national differences in calm smiles. Contrary to Hypothesis 2, national differences in excited smiles did not vary by election outcome. Next we examined the effects of rank on American and Chinese CEOs and university presidents.<sup>4</sup>

## Study 2b: Higher and Lower Ranked CEOs and University Presidents in US and China

**Photo selection.** Information regarding selection of the higher ranked leaders is reported in Study 1.

*CEOs.* We selected approximately half of the lower ranked companies (by revenue) (50 US companies, 30 Chinese companies) from the Fortune Global 500. Of the US companies, photos of 40 CEOs were coded (photos of 10 CEOs were not available); of the Chinese companies, photos of 19 CEOs were coded (photos of 11 CEOs were not available). In sum, there were 39 photos of CEOs from higher ranked US companies (from Study 1); 40 photos of CEOs from lower ranked US companies (this study); 23 photos of CEOs from higher ranked Chinese companies (from Study 1); and 19 photos of CEOs from lower ranked Chinese companies (this study).

*University presidents.* The 53 lower ranked US universities (including universities tied in rank) and the 50 lower ranked Chinese universities were selected from US News & World Report (<http://colleges.usnews.rankingsandreviews.com/best-colleges>) and a comparable Chinese website (<http://gaokao.com/e/20120109/4f0a8e1773aa0.shtml>), respectively. Of the US universities, photos of 47 university presidents were coded (the photo of 1 university president was not available; photos of 5 university presidents were not posed). Of the Chinese universities, photos of 29 university presidents were coded (photos of 19 university presidents were not available; photos of 2 university presidents were not posed). In sum, there were 44 photos of university presidents from higher ranked US universities (from Study 1), 47 photos of university presidents from lower ranked US universities, 41 photos of university presidents from higher ranked Chinese universities (from Study 1), and 29 photos of university presidents from lower ranked Chinese universities.

**Coding.** As in Studies 1 and 2a, we examined whether the CEOs and university presidents showed any smile, an excited smile, or a calm smile based on FACS coding described in Study 1. The same two independent coders from Studies 1 and 2a coded the

photos. As in Study 1, we coded the photos using Noldus Face Reader and Emotient Analytics, and replicated the results described below (these results and results based on individual AUs are available upon request).

**Ranking.** The within-nation rank of each company and university was obtained. The rank of US companies ranged from 2 to 133 (mean = 69.75, SD = 44.76), and the rank for US universities ranged from 1 to 194 (mean = 101.65, SD = 76.03). The rank of Chinese companies ranged from 1 to 61 (mean = 30.19, SD = 18.74), and the rank of Chinese universities ranged from 1 to 200 (mean = 87.99, SD = 77.49).<sup>5</sup>

### Study 2b: Data Analyses and Results

As in Study 2a, we conducted logistic regression analyses in which Nation (0 = China, 1 = US), Occupation (0 = CEO, 1 = university president), Ranking, and their interactions were included in the regression model.

First, we examined whether nation and ranking predicted leaders' expression of any smile, using the same logistic regression models as in Study 2a. The model was significant,  $\chi^2(7) = 84.53, p < .001$ . Nation positively predicted the occurrence of any smile type (US Any Smile = .96, China Any Smile = .54,  $B = 2.43, SE = 1.00, Wald = 5.94, p = .015$ ), with leaders in the US being 11.33 times (odds ratio, 95% CI [1.61, 79.71]) more likely to express any type of smile than were leaders in China. Ranking, however, was not a significant predictor of any smile ( $B = .01, SE = .02, Wald = .37, p = 0.541$ ), and neither was Occupation ( $B = .48, SE = .70, Wald = .47, p = .492$ ). Similarly, none of the interactions were significant  $p > .379$ .

Next, we examined whether Nation and Ranking predicted the occurrence of excited smiles. The model predicting the occurrence of excited smiles was significant,  $\chi^2(7) = 45.32, p < .001$ . Nation was a significant predictor of excited smiles (US Excited Smile = .32, China Excited Smile = .05,  $B = 2.68, SE = 1.34, Wald = 4.01, p = .045$ ), with American leaders showing more excited smiles than Chinese leaders. Ranking, however, was not a significant predictor of

excited smiles ( $B = .03$ ,  $SE = .03$ ,  $Wald = .95$ ,  $p = .330$ ), and neither was Occupation ( $B = .75$ ,  $SE = 1.58$ ,  $Wald = .23$ ,  $p = .634$ ). None of the interactions were significant,  $p > .195$ .

Finally, analyses revealed that the model for calm smiles was not significant,  $\chi^2(7) = 13.16$ ,  $p = .068$ , perhaps because the occurrence of calm smiles for both groups was extremely low (US Calm Smile = .07, China Calm Smile = 0).

Thus, in terms of CEOs and university presidents, Study 2b findings were also consistent with Hypothesis 1 and Study 1. However, contrary to Hypothesis 1 but consistent with Studies 1 and 2a, there were no national differences in calm smiles, again perhaps because of the low occurrence of calm smiles. Contrary to Hypothesis 2, the national differences in excited smiles did not vary as a functioning of company or university ranking.

In sum, Studies 2a and 2b findings overall suggest that leaders' expressions in their official photos generally reflect cultural values regarding emotion, and that higher ranked leaders show this as well as lower ranked leaders do, at least among political candidates in the US and Taiwan, CEOs of US and Chinese companies listed in the Global Fortune 500, and presidents of US and Chinese universities listed in the US News and World Report College Rankings and its Chinese equivalent.

### **Study 3: Are National Differences in Smiles Related to Ideal Affect?**

In Studies 1-2, we demonstrated that American leaders smiled more and expressed more excited smiles than did Chinese leaders across occupations (Study 1) and regardless of rank (Study 2). However, these studies were limited in several ways. First, the studies were limited to American and Chinese comparisons. Second, neither of the studies assessed ideal affect, and therefore, we cannot be sure that national differences in leaders' smiles were due to national differences in ideal affect vs. other national differences (e.g., democratization). Third, the occurrence of calm smiles was relatively low, and therefore, it is possible that the low occurrence of the calm smiles limited our ability to observe any significant cultural variation.



Therefore, in a final study, we examined the association between “national” levels of ideal affect based on college student samples and the emotional expressions of national leaders in their official photos across 10 different nations. We focused on legislators because findings from Study 1 suggested no differences across occupations, and photos of government leaders were the most accessible across nations. Although these data were correlational, we obtained national levels of ideal affect almost eight years before we coded the emotional expressions of legislators, decreasing the likelihood that these officials were influencing national levels of ideal affect. We also obtained national levels of actual affect to ensure that the findings were specific to ideal affect. Further, to examine whether ideal affect predicted leaders' expressions above and beyond other political, social, and economic indicators, we controlled for each nation's level of democratization, level of human development, and gross domestic product (GDP) per capita. Based on previous work (e.g., Dorn, Fischer, Kirchgässner, & Sousa-Poza, 2007; Hagerty & Veenhoven, 2003; Inglehart, Foa, Peterson, & Welzel, 2008; Vemuri & Constanza, 2006), we thought it possible that the more democratic, the more developed, and the wealthier a nation, the more likely leaders might be to smile and show excitement smiles. Thus, we controlled for these variables in our analyses to ensure that ideal affect predicted leaders' expressions above and beyond these national indicators.

In previous work we demonstrated that cultural differences in ideal HAP and ideal LAP are due to cultural differences in interpersonal goals associated with independence and interdependence (Tsai, Miao, Seppala, Fung, & Yeung, 2007). Therefore, we also examined whether the findings held when we controlled for individualism and collectivism (independence and interdependence at the national levels), predicting that there would be shared variance, and therefore, some overlap between the constructs. Finally, because we included legislators from a greater range of nations, we thought it possible that cultural variation in calm smiles might emerge.

Thus, we hypothesized that: (1) the more nations valued HAP, the more their leaders would show excited smiles, (2) the more nations valued LAP, the more their leaders would show calm smiles, and (3) national ideal affect would predict leaders' emotional expressions more than national actual affect. We also hypothesized that (4) national ideal affect would predict leaders' smiles above and beyond each nation's gross domestic product per capita, democratization, or human development.

### Study 3 Method

Nations were originally chosen for the purposes of a different study that examined actual and ideal affect in various Western (United States, United Kingdom, France, Germany), East Asian (China, Hong Kong, Japan, South Korea, Taiwan), and Latin American contexts (Mexico). Due to differences in political systems across sampled nations, we decided to examine leaders in the legislative assemblies because they form the primary part of government that represents citizens' concerns. For nations that had a bicameral legislative system, leaders from both the upper and the lower house were examined.

**Photo selection.** Photos of each leader were downloaded from their biography pages found on official websites of their legislative assemblies in the nation's native language in Spring of 2013. Although nearly every legislator had a biography page, only those with photos were examined (which was the majority of legislators). At least 50% of the photos from each nation were randomly selected for coding, with one exception: given the large size of China's Congress (2,978 legislators), only 25% of the photos were randomly selected. A total of 3,372 photos (out of a possible 7,757) were coded. Table 1 lists the number of photos that were coded for each nation.<sup>6</sup>

**Coding.** Photos were again coded using the Facial Action Coding System (FACS) (Ekman, Friesen, & Hager, 1978). The same two independent coders from Studies 1 and 2 coded the photos. As in Studies 1 and 2, we examined the occurrence of any smile [AU 12],

“calm” smiles [AU 6 + 12, but no 25], and “excited” smiles [AU 6 + 12 + 25 and/or 26] (results for individual AUs are available upon request).

**National Ideal and Actual Affect.** Participants (N= 1,348) were recruited from top tier universities in the nations listed above in 2005 (see Table 1 for list of universities), with the exception of the US (Stanford) and Hong Kong (Chinese University of Hong Kong) samples, which were taken from Tsai et al. (2006, Study 2). Researchers at each site aimed to recruit 150 undergraduates (50% female) to participate in a pencil-and-paper study on “emotions, thoughts, and feelings;” this sample size was based on Tsai et al. (2006). Researchers recruited undergraduates who were born and raised in the nation in which the university was located. To maintain similar levels of cultural homogeneity within each national sample, the US sample included European Americans only. Participants completed a series of questionnaires, including the Affect Valuation Index (AVI; Tsai, Knutson, & Fung, 2006). All materials were translated into the native language of the nation, and then back-translated by bilingual speakers beforehand to ensure accuracy of the survey (Brislin, 1970). Participants completed the survey in class or at home. Eighty-one participants were excluded from data analysis because of missing data or because their ages were outliers (3 SD or greater from national mean). Thus, we conducted our data analyses on a final sample size of 1,267 (Table 1 lists the final sample size for each nation).

To assess ideal affect, participants were asked to “rate how often you would ideally like to have <state> over the course of a typical week” on a 5-point scale (1 = “never” and 5 = “all the time”) for 28 states (elated, excited, enthusiastic, euphoric, strong, content, happy, satisfied, peaceful, calm, relaxed, serene, at rest, fearful, hostile, nervous, sad, unhappy, lonely, dull, sleepy, sluggish, astonished, surprised, aroused, still, passive, quiet). To assess actual affect, participants were asked to rate “how often you actually have that feeling over the course of a typical week” for the same states, using the same scale. To test our hypotheses, we focused on high arousal positive states (HAP; “enthusiastic”, “excited”, “elated”, “euphoric”) and low arousal

positive states (LAP; “serene”, “calm”, “relaxed,” “peaceful”). “Excited” and “serene” were excluded from the German HAP and LAP composites, respectively, due to translation errors, and “strong” was included in the South Korean HAP composite to increase reliability. Internal consistencies ranged from .52 to .80 (Mean = .69, SD = .09) for ideal HAP, .56 to .79 (Mean = .70, SD = .07) for ideal LAP, .52 to .85 (Mean = .73, SD = .10) for actual HAP, and .59 to .83 (Mean = .73, SD = .08) for actual LAP. We also conducted the analyses using mean-deviated scores to control for response style biases; however, because the pattern of results was very similar, we report raw scores (results using mean-deviated scores are available upon request).

**National Indicators.** To assess whether ideal affect predicted emotional expressions of national legislators independent of other political, economic, and social indicators, we also obtained measures of democracy (Democracy Index, Economist Intelligence Unit, 2012), wealth (GDP, or gross domestic product, per capita, World Bank, 2012), and social and economic development (Human Development Index, United Nations Development Programme, 2012) for each of the 10 nations. Because Taiwan was not included in the data set from the United Nations Development Programme (2012), we acquired this value from the Taiwanese government website ([www.dgbas.gov.tw/public/Data/366166371.pdf](http://www.dgbas.gov.tw/public/Data/366166371.pdf)). We obtained measures of individualism-collectivism for each nation from Hofstede (2010).

### Study 3 Results and Data Analysis

Table 2 lists the mean levels of ideal and actual affect and mean proportion of total photos for “any smile,” “calm smile,” and “excited smile” for each nation.

#### Does National Ideal Affect Predict Leaders' Emotional Expressions?

Table 3 lists the zero-order correlations for all of the variables of interest. As predicted, ideal HAP was positively correlated with the occurrence of excited smiles ( $r = .81$ , 95% CI [.50, .95]) (Figure 3), and ideal LAP was positively correlated with the occurrence of calm smiles ( $r = .75$ , 95% CI [.38, .94]) (Figure 4). Actual HAP and actual LAP were also positively correlated with excited and calm smiles ( $r = .57$ , 95% CI [-.11, .95] and  $r = .41$ , 95% CI [-.62, .85]),

respectively; however, the magnitude of these correlations was smaller than those between national ideal affect and legislators' smiles.

To control for the overlap between actual and ideal affect, we conducted multiple regression analyses in which the proportion of total photos that contained each type of smile for each nation was regressed onto levels of ideal and actual affect for each nation. Because of our small sample size (10 nations), we conducted separate regressions for HAP and LAP. Results were confirmed with HLM (also available upon request). First, we examined whether national ideal affect predicted the occurrence of any smile. The more nations valued HAP (ideal HAP), the more likely their legislators were to show any smile ( $B = .454$ ,  $SE = .185$ ,  $\beta = .737$ ,  $t = 2.456$ ,  $p = .044$ , 95% CI = .017 to .891), whereas national actual HAP was not significantly associated with the likelihood of legislators to show any smile ( $B = .032$ ,  $SE = .25$ ,  $\beta = .038$ ,  $t = .126$ ,  $p = .903$ , 95% CI = -.559 to .622). Neither national levels of ideal LAP ( $B = .418$ ,  $SE = .247$ ,  $\beta = .732$ ,  $t = 1.695$ ,  $p = .134$ , 95% CI = -.165 to 1.001) or actual LAP ( $B = -.345$ ,  $SE = .318$ ,  $\beta = -.468$ ,  $t = -1.084$ ,  $p = .314$ , 95% CI = -1.097 to .407) were significant predictors of any smile.

Second, we examined whether national ideal affect predicted the occurrence of excited smiles. Consistent with Hypothesis 1, the more nations valued HAP, the more likely legislators were to show excited smiles ( $B = .218$ ,  $SE = .08$ ,  $\beta = .719$ ,  $t = 2.735$ ,  $p = .029$ , 95% CI = .029 to .406). Again, this association held after controlling for national actual HAP, which was not a significant predictor of excited smiles ( $B = .066$ ,  $SE = .108$ ,  $\beta = .16$ ,  $t = .609$ ,  $p = .562$ , 95% CI = -.189 to .32). National ideal LAP ( $B = .08$ ,  $SE = .138$ ,  $\beta = .283$ ,  $t = .577$ ,  $p = .582$ , 95% CI = -.247 to .406) and actual LAP ( $B = .002$ ,  $SE = .178$ ,  $\beta = .005$ ,  $t = .01$ ,  $p = .992$ , 95% CI = -.419 to .423) were also not significant predictors of excited smiles.

Consistent with Hypothesis 2, the more nations valued LAP, the more likely legislators were to show calm smiles ( $B = .082$ ,  $SE = .031$ ,  $\beta = .868$ ,  $t = 2.599$ ,  $p = .035$ , 95% CI = .007 to .156). Again, this association held after controlling for national actual LAP, which was not significantly associated with calm smiles ( $B = -.022$ ,  $SE = .041$ ,  $\beta = -.178$ ,  $t = -.533$ ,  $p = .611$ ,

95% CI = -.118 to .074). Ideal HAP ( $B = .052$ ,  $SE = .042$ ,  $\beta = .508$ ,  $t = 1.219$ ,  $p = .262$ , 95% CI = -.049 to .152) and actual HAP ( $B = -.056$ ,  $SE = .057$ ,  $\beta = -.404$ ,  $t = -.971$ ,  $p = .364$ , 95% CI = -.191 to .08) were not significant predictors of calm smiles.<sup>7</sup>

In sum, consistent with Hypotheses 1 and 2, the more nations valued HAP, the more likely their leaders were to show excited smiles, and the more nations valued LAP, the more likely their leaders were to show calm smiles. Consistent with Hypothesis 3, national ideal affect predicted legislators' facial expressions more than national actual affect (i.e., standardized betas were consistently higher for national ideal affect than for national actual affect).

### **Does Ideal Affect Predict Leaders' Expressions Above and Beyond Other National Indicators?**

To test Hypothesis 4, we conducted another series of regression analyses for each type of smile (i.e., any, calm, excited). We regressed type of smile onto the specific type of ideal affect that the above analyses revealed was a significant predictor, and onto each national indicator (democratization, human development, GDP per capita). Again, because our sample size was small (i.e., 10 nations), we conducted separate analyses for each indicator.

We first examined whether ideal HAP would predict the presence of any smile, even after controlling for democratization, human development, and GDP per capita. Interestingly, the more democratic ( $B = .056$ ,  $SE = .02$ ,  $\beta = .587$ ,  $t = 2.807$ ,  $p = .026$ , 95% CI = .009 to .104) and developed ( $B = 1.567$ ,  $SE = .295$ ,  $\beta = .756$ ,  $t = 5.322$ ,  $p = .001$ , 95% CI = .871 to 2.264) nations were, the more likely they were to have legislators who smiled in their official photos. These findings are consistent with evidence that nations that are more democratic and developed have higher levels of well-being and happiness, as assessed through self-report (Inglehart, Foa, Peterson, & Welzel, 2008). GDP per capita, however, was not associated with the general presence of any smile ( $p > .11$ ).

We examined whether ideal affect specifically predicted the presence of excited and calm smiles after controlling for democratization, human development, and GDP. None of the

national indicators significantly predicted excited smiles ( $ps > .10$ ), and consistent with Hypothesis 4, national ideal HAP predicted excited smiles above and beyond each of these variables (In model with democracy index, ideal HAP  $B = .175$ ,  $SE = .069$ ,  $\beta = .578$ ,  $t = 2.518$ ,  $p = .04$ , 95% CI = .011 to .339; in model with HDI, ideal HAP  $B = .195$ ,  $SE = .081$ ,  $\beta = .644$ ,  $t = 2.396$ ,  $p = .048$ , 95% CI = .003 to .387; in model with GDP, ideal HAP  $B = .21$ ,  $SE = .078$ ,  $\beta = .732$ ,  $t = 2.704$ ,  $p = .035$ , 95% CI = .02 to .399). Similarly, none of the national indicators significantly predicted leaders' calm smiles ( $ps > .10$ ), and consistent with Hypothesis 4, national ideal LAP predicted calm smiles above and beyond these variables (In model with democracy index, ideal LAP  $B = .064$ ,  $SE = .022$ ,  $\beta = .68$ ,  $t = 2.952$ ,  $p = .021$ , 95% CI = .013 to .115; in model with HDI, ideal LAP  $B = .069$ ,  $SE = .024$ ,  $\beta = .73$ ,  $t = 2.836$ ,  $p = .025$ , 95% CI = .011 to .126; in model with GDP, ideal LAP  $B = .065$ ,  $SE = .026$ ,  $\beta = .71$ ,  $t = 2.445$ ,  $p = .05$ , 95% CI = 0.00 to .129).

When individualism-collectivism was entered in the model, it was not a significant predictor of any, excited, or calm smiles ( $ps > .24$ ). However, when individualism-collectivism was included in the model, ideal HAP was no longer a significant predictor of excited smiles  $B = .162$ ,  $SE = .09$ ,  $\beta = .534$ ,  $t = 1.805$ ,  $p = .114$ , 95% CI = -.05 to .373, and ideal LAP became a marginally significant predictor of calm smiles  $B = .054$ ,  $SE = .027$ ,  $\beta = .568$ ,  $t = 1.952$ ,  $p = .092$ , 95% CI = -.011 to .118. These results suggest that individualism-collectivism and ideal affect may have some overlapping variance, which is consistent with our previous work demonstrating links between independence goals and valuing HAP, and between interdependence goals and valuing LAP (Tsai, Miao, Seppala, Fung, & Yeung, 2007), and supports the idea that leaders' expressions are shaped by these cultural factors.

### Study 3 Discussion

Findings from Studies 1 and 2 demonstrate that national differences in leaders' smiles hold across occupations and across rank. Findings from Study 3 suggest that national differences in leaders' emotional expressions reflect their nation's "ideal affect," or how their

citizens ideally want to feel. The more nations valued excitement and other high arousal positive states, the more likely their leaders were to show excited smiles, and the more nations valued calm and other low arousal positive states, the more likely their leaders were to show calm smiles. In contrast, the degree to which citizens actually reported feeling these states was not significantly associated with leaders' emotional expressions, suggesting that leaders' emotional expressions specifically reflect the emotions most desired by their constituents. Finally, ideal affect predicted leaders' emotional facial expressions above and beyond other national indicators such as democratization, human development, and gross domestic product.

Surprisingly, leaders who showed the greatest occurrence of calm smiles came from Western nations such as France and Germany. Like Ruby et al. (2012), this is one of the first studies to expand previous work on ideal affect to a variety of different Western and East Asian nations, and provides further evidence for variability among different Western and East Asian cultures.

### **General Discussion**

Across three studies, we demonstrated that cultural differences in ideal affect are reflected in the official photos of government leaders, CEOs, and university presidents. Specifically, in the first two studies, consistent with our hypotheses and previous findings, American public leaders showed more excited smiles than did Chinese public leaders. These findings held across various occupations (government, business, academia), and across different rankings, suggesting that cultural differences in ideal affect are pervasive. Contrary to our hypotheses, there were no differences in the occurrence of calm smiles. One potential problem was that these studies focused on two cultural contexts, and therefore, in a third study, we sampled a broader range of nations. Here we observed that the more nations valued HAP, the more excited smiles their legislators showed, and the more nations valued LAP, the more calm smiles their legislators showed, directly supporting the argument that cultural differences in ideal affect are reflected in the photos of public officials. In addition, although national indicators



assessing democratization and development predicted the likelihood of leaders' showing any smile, ideal affect predicted the specific type of smile (i.e., excited or calm) that leaders' showed in the official photos above and beyond these national indicators. Importantly, the association between ideal affect and smiles weakened when we included individualism-collectivism in the model, further evidence for the relationship between these cultural orientations and ideal affect that we have observed in previous work (Tsai et al., 2007).

### **Implications for Affect Valuation Theory and Research on Emotional Expression**

Together, these studies demonstrate that as predicted by AVT, cultural differences in ideal affect are pervasive and reflected in widely distributed cultural products, including leaders' official photos. These findings have important implications for research examining the real world consequences of emotional expression. As mentioned above, several studies have demonstrated that greater smile intensity is associated with better real world outcomes such as marriage, divorce, and even longevity. Our studies, however, raise the possibility that these links may be stronger in cultures that value HAP. Indeed, although smile intensity was associated with greater voter share in Japan and Australia, the magnitude of the effect was significantly larger in Australia than Japan (Horiuchi et al., 2012). Moreover, while previous studies suggest that expressions displayed in public photos reflect individual differences in the personality traits of the individuals in the photos, our findings suggest that these expressions also reflect cultural ideals.

### **Limitations and Future Directions**

The present work has several limitations that should be addressed in future research. First, because we did not have access to officials' neutral faces, it is possible that cultural differences in the emotional expressions of official photos might have been due to cultural differences in neutral expressions. To rule out this possibility, as mentioned above, we ran the photos through Noldus Face Reader and Emotient Analytics, two facial coding programs that adjust for ethnic differences in neutral expressions, and overall replicated our results. In

addition, we compared Asian neutral faces from the Taiwanese Facial Expression Image Database developed by Taiwanese researchers (Chen & Yen, 2007) with White neutral faces from the IAS Lab Face Set developed by American researchers (Barrett & Bliss-Moreau, 2009). We focused on Asian and White neutral faces because most of the faces coded in Studies 1 and 2 were Asian and White. We coded these neutral faces with FACS, and found no significant cultural group differences in any of the AUs ( $p > .4$ ). We confirmed these results with Emotient Analytics ( $p > .20$ ). We also tried to code the images with Noldus Face Reader, but it could not code a significant percentage of the Taiwanese neutral faces, in all likelihood because the targets' ears---which Noldus uses as a reference point---were difficult to see. These findings, coupled with the fact that the results from Studies 1 and 2 were replicated with Noldus Face Reader and Emotient Analytics, suggest that the observed cultural differences in leaders' smiles were not due to cultural differences in their neutral expressions. Future studies should examine leaders' facial expressions using more dynamic stimuli (e.g., video recordings), so that researchers can take leaders' own neutral expressions into account when coding their emotional expressions.

Second, because the ideal affect data in Study 3 were based on student samples, it would be important to examine whether the observed relationships hold when ideal affect data are collected from samples that differ in age and occupation. Third, we focused on the emotional content of leaders' official photos; in future work, we hope to compare the emotional content of leaders' speeches. It is possible that calmness may be easier to capture in vocal (vs. facial) expression when comparing American and Chinese leaders.

Fourth, in Study 2b, we compared the rank of CEOs of companies that were part of the Fortune Global 500, and therefore, it is possible that the reason we did not see an effect of rank is because these companies are already a select sample of successful companies. In future research, it would be important to include the photos of leaders of companies that are not part of the Fortune 500. We predict that we would find a similar pattern of results even with a more

representative sample of companies because we found no effects of ranking on university presidents' smiles, and these rankings are based on the US News and World Report rankings and their equivalent in China, which are more representative of the universities that exist in both nations. Furthermore, we believe that the expressions of many individuals reflect cultural differences in ideal affect, not just those of leaders. Indeed, although they did not link their findings to ideal affect, Huang & Park (2013) observed that American Facebook pages had higher intensity smiles than Taiwanese Facebook pages. Similarly, we observed that American storybook characters showed more excited and fewer calm smiles than Taiwanese storybook characters (Tsai et al., 2007), suggesting that these differences are not specific to leaders.

Fifth, because the affect data in Study 3 were collected 8 years earlier than the photos, it is likely that cultural differences in ideal affect shaped leaders' expressions rather than the reverse. Thus, leaders' emotional expressions are a product of cultural ideals. However, as Kroeber and Kluckhohn (1952) suggest in their definition of culture, cultural products also reinforce cultural ideals. If this is the case, leaders' photos should also teach people implicitly or explicitly which expressions they should value and ideally want to feel. Indeed in our previous work, we observed that European American, Asian American, and Taiwanese children who were read exciting (vs. calm) storybooks subsequently showed a greater preference for excited (vs. calm) states (Tsai, Louie, Chen, & Uchida, 2007). Even more than storybooks, officials' photos may reinforce ideal affect among individuals of all ages, and for this reason, may be a broader channel of socialization. We are currently examining whether this is the case.

Finally, our findings suggest that the emotional cues of leadership vary across cultures as a function of ideal affect. Consequently, people may consciously and unconsciously use their ideal affect to judge others' leadership potential. Indeed, in previous work, we found that the more people valued HAP, the more knowledgeable and trustworthy they viewed an excited (vs. calm) physician, and the more people valued LAP, the more knowledgeable and trustworthy they viewed a calm (vs. excited) physician (Sims & Tsai, 2015). We are currently examining how

people's ideal affect influences their judgments of other characteristics as well, including leadership, and the mechanisms underlying these processes (Park, Tsai, Blevins, Chim, & Knutson, 2015).

In conclusion, the more nations value high arousal positive states, the more likely their leaders are to show excited smiles, and the more nations value low arousal positive states, the more likely their leaders are to show calm smiles. These findings suggest that leaders' expressions in their official photos reflect not only their individual characteristics but also their culture's ideal affect.

## ENDNOTES

- 1 Previous work has distinguished between Duchenne (genuine) and non-Duchenne (social) smiles, which are defined by the presence or absence of AU 6 (eye wrinkling), respectively. The majority of smiles in the photos were non-Duchenne smiles, perhaps because of airbrushing or alterations of the photos. We focused our analyses on Duchenne smiles because we were interested in what previous researchers have referred to as “genuine” smiles.
- 2 We used dummy coding to represent pairwise comparisons between the three occupations; to save space, we do not report these results because they were not significant.
- 3 We did not collapse Studies 2a and 2b because the political systems of Taiwan and China are different.
- 4 We replicated these results with Emotient Analytics, with one exception. Significant cultural differences in the Emotient category “joy” did not emerge, perhaps because this category lumps “any smiles” and “excited smiles” into one category, and there were no differences between Taiwanese and American political candidates in “any smile.”
5. The mean rank of the bottom Chinese companies was higher than that of the bottom US companies because there were fewer Chinese companies in the Fortune Global 500.
6. Because we did not have the resources to manually FACS code all 7,757 photos, we conducted a series of tests to determine the percentage of these photos to code. First, we coded all of the possible photos for the US and Taiwan, and then ran our analyses on 20%, 50%, 80% and 100% of the coded photos. Results were very similar regardless of whether they were conducted on 20, 50, 80, or 100% of the photos, and therefore, for the remaining nations, we coded a randomly selected 25-50% of the total number of photos available for those nations, depending on how many photos were available for that nation.

7. Although the majority of legislators were male, we conducted analyses separately for female and male legislators, and observed a similar pattern of results for both genders. Therefore, we do not discuss gender of legislator further here.

## REFERENCES

- Abel, E. L., & Kruger, M. L. (2010). Smile intensity in photographs predicts longevity. *Psychological Science, 21*(4), 542-544.
- Barrett, L. F., & Bliss-Moreau, E. (2009). She's emotional. He's having a bad day: Attributional explanations for emotion stereotypes. *Emotion, 9*(5), 649-658.
- Brislin, R. W. (1970). Back-translation for cross-cultural research. *Journal of cross-cultural psychology, 1*(3), 185-216.
- Chen, L. F., & Yen, Y. S. (2007). Taiwanese facial expression image database. Available: <http://bml.ym.edu.tw/download/html>. Brain Mapping Laboratory, Institute of Brain Science, National Yang-Ming University, Taipei, Taiwan.
- Cohn, N., Taylor-Weiner, A., & Grossman, S. (2012). Framing attention in Japanese and American comics: cross-cultural differences in attentional structure. *Frontiers in psychology, 3*, 349.
- Diener, E., & Lucas, R. (1999). Personality and subjective well-being. In D. Kahneman, E. Diener, & N. Schwarz (Eds.), *Well-being: The foundations of hedonic psychology* (pp. 213–229). New York: Russell Sage Foundation.
- Dorn, D., Fischer, J. A., Kirchgässner, G., & Sousa-Poza, A. (2007). Is it culture or democracy? The impact of democracy and culture on happiness. *Social Indicators Research, 82*(3), 505-526.

- Economist Intelligence Unit. (2012). *Democracy index 2012: Democracy at a standstill*. Retrieved from <http://www.eiu.com/Handlers/WhitepaperHandler.ashx?fi=Democracy-Index-2012.pdf&mode=wp&campaignid=DemocracyIndex12>
- Ekman, P., Friesen, W. V., & Hager, J. C. (1978). Facial action coding system (FACS). A *technique for the measurement of facial action*. Consulting, Palo Alto.
- Emotient Analytics [Computer software]. San Diego, CA: Emotient, Inc.
- Hagerty, M. R., & Veenhoven, R. (2003). Wealth and happiness revisited—growing national income does go with greater happiness. *Social indicators research*, 64(1), 1-27.
- Harker, L., & Keltner, D. (2001). Expressions of positive emotion in women's college yearbook pictures and their relationship to personality and life outcomes across adulthood. *Journal of personality and social psychology*, 80(1), 112-124.
- Hertenstein, M. J., Hansel, C. A., Butts, A. M., & Hile, S. N. (2009). Smile intensity in photographs predicts divorce later in life. *Motivation and Emotion*, 33(2), 99-105.
- Hofstede, G., Hofstede, G. J., & Minkov, M. (2010). *Cultures and organizations: Software of the Mind* (3<sup>rd</sup> ed.). New York, NY: McGraw-Hill.
- Horiuchi, Y., Komatsu, T., & Nakaya, F. (2012). Should Candidates Smile to Win Elections? An Application of Automated Face Recognition Technology. *Political Psychology*, 33(6), 925-933.
- Huang, C. M., & Park, D. (2013). Cultural influences on Facebook photographs. *International Journal of Psychology*, 48(3), 334-343.
- Inglehart, R., Foa, R., Peterson, C., & Welzel, C. (2008). Development, freedom, and rising happiness: A global perspective (1981–2007). *Perspectives on psychological science*, 3(4), 264-285.
- Kim, H., & Markus, H. R. (1999). Deviance or uniqueness, harmony or conformity? A cultural analysis. *Journal of Personality and Social Psychology*, 77(4), 785-800.

- Koopmann-Holm, B. & Tsai, J.L. (2014). Focusing on the negative: Cultural differences in expressions of sympathy. *Journal of Personality and Social Psychology*. Advance online publication.
- Kroeber, A. L., & Kluckhohn, C. (1952). Culture: A critical review of concepts and definitions. *Papers. Peabody Museum of Archaeology & Ethnology, Harvard University*.
- Masuda, T., Gonzalez, R., Kwan, L., & Nisbett, R. E. (2008). Culture and aesthetic preference: Comparing the attention to context of East Asians and Americans. *Personality and Social Psychology Bulletin*, 34(9), 1260-1275.
- Morling, B., & Lamoreaux, M. (2008). Measuring culture outside the head: A meta-analysis of individualism–collectivism in cultural products. *Personality and Social Psychology Review*, 12(3), 199-221.
- Noldus FaceReader [Computer software]. Wageningen, The Netherlands: Noldus Information Technologies.
- Park, B., Tsai, J.L., Chim, L., Blevins, E., & Knutson, B. (2015). Neural evidence for cultural differences in the valuation of positive facial expressions. *Social Cognitive and Affective Neuroscience*. doi: 10.1093/scan/nsv113
- Ruby, M. B., Falk, C. F., Heine, S. J., Villa, C., & Silberstein, O. (2012). Not all collectivisms are equal: Opposing preferences for ideal affect between East Asians and Mexicans. *Emotion*, 12(6), 1206-1209.
- Rule, N. O., & Ambady, N. (2008). The Face of Success Inferences From Chief Executive Officers' Appearance Predict Company Profits. *Psychological Science*, 19(2), 109-111.
- Rule, N. O., Ambady, N., Adams Jr, R. B., Ozono, H., Nakashima, S., Yoshikawa, S., & Watabe, M. (2010). Polling the face: prediction and consensus across cultures. *Journal of personality and social psychology*, 98(1), 1-15.



- Rule, N. O., Ishii, K., & Ambady, N. (2011). Cross-cultural impressions of leaders' faces: Consensus and predictive validity. *International Journal of Intercultural Relations*, 35(6), 833-841.
- Shweder, R. A. (2003). *Why do men barbecue?: Recipes for cultural psychology*. Harvard University Press.
- Sims, T., & Tsai, J. L. (2015). Patients respond more positively to physicians who focus on their ideal affect. *Emotion*, 15(3), 303-318.
- Snibbe, A. C., & Markus, H. R. (2005). You can't always get what you want: educational attainment, agency, and choice. *Journal of personality and social psychology*, 88(4), 703-720.
- Todorov, A., Mandisodza, A. N., Goren, A., & Hall, C. C. (2005). Inferences of competence from faces predict election outcomes. *Science*, 308(5728), 1623-1626.
- Tsai, J. L. (2007). Ideal affect: Cultural causes and behavioral consequences. *Perspectives on Psychological Science*, 2(3), 242-259.
- Tsai, J. L., Knutson, B., & Fung, H. H. (2006). Cultural variation in affect valuation. *Journal of personality and social psychology*, 90(2), 288.
- Tsai, J. L., Louie, J. Y., Chen, E. E., & Uchida, Y. (2007). Learning what feelings to desire: Socialization of ideal affect through children's storybooks. *Personality and Social Psychology Bulletin*, 33(1), 17-30.
- Tsai, J. L., Miao, F. F., Seppala, E., Fung, H. H., & Yeung, D. Y. (2007). Influence and adjustment goals: sources of cultural differences in ideal affect. *Journal of personality and social psychology*, 92(6), 1102.
- United Nations Development Programme. (2012). Table 2: Human development index trends. *Human Development Reports*. Retrieved from <https://data.undp.org/dataset/Table-2-Human-Development-Index-trends/efc4-qjvq>

Vemuri, A. W., & Costanza, R. (2006). The role of human, social, built, and natural capital in explaining life satisfaction at the nation level: Toward a National Well-Being Index (NWI). *Ecological Economics*, 58(1), 119-133.

World Bank. (2012). GDP per capita. Retrieved from <http://data.worldbank.org/indicator/NY.GDP.PCAP.CD>

Figure 1. Action units (AUs) for excited smiles (AU 6 + 12 + 25 + [26]) (left), and calm smiles (AU 6 + 12 no 25 or 26) (right) across all studies.



Figure 2. Occurrence of excited and calm smiles (shown as a proportion of total photos) in top leaders' official photos in the US and China (Study 1). \* $p < .05$ .



Figure 3. Zero-order Association Between National Ideal HAP and Legislators' Excited Smiles

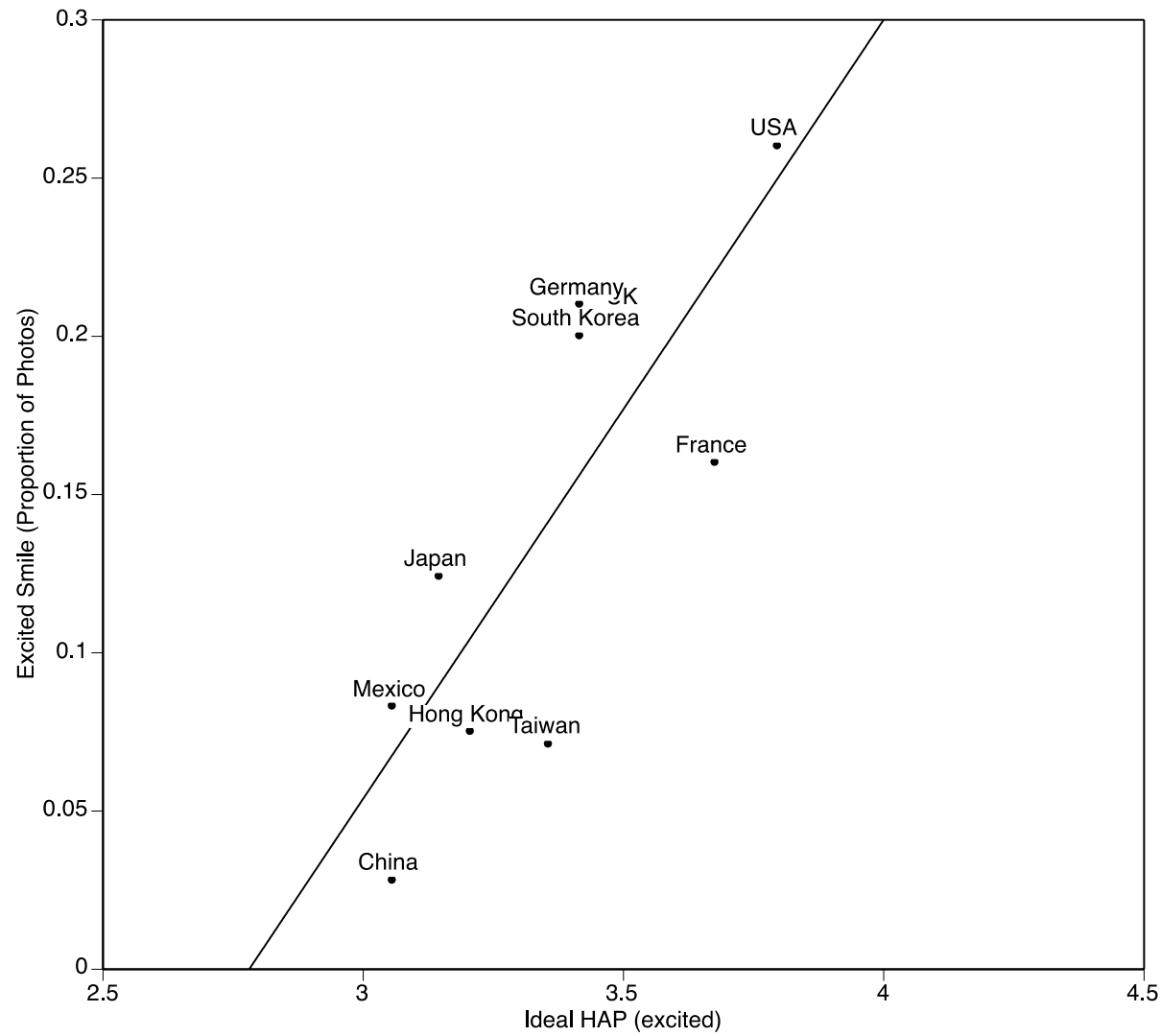


Figure 4. Zero-order Association Between National Ideal LAP and Legislators' Calm Smiles

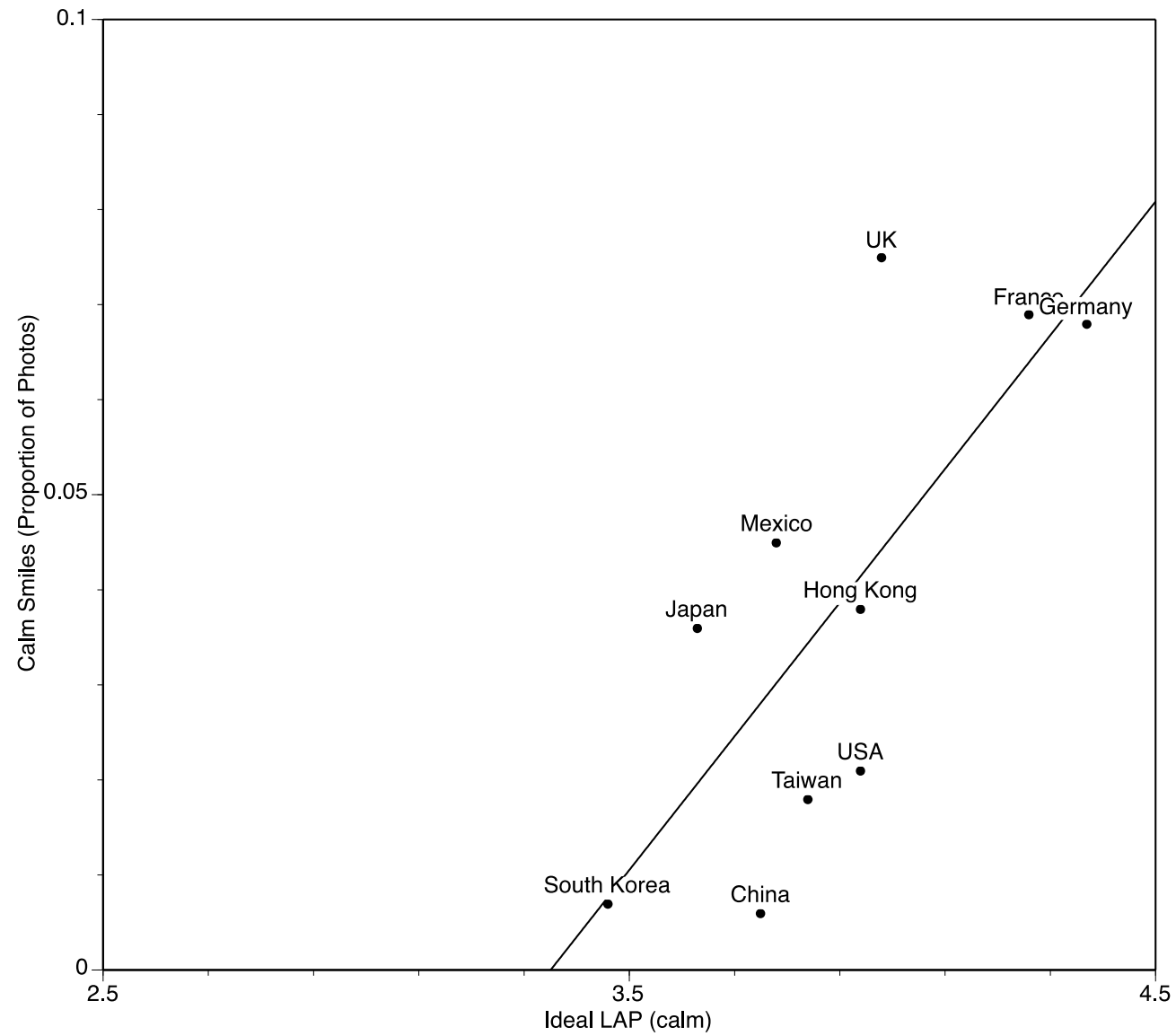


Table 1

*Nations Sampled, Photos Coded, and Affect Measures for Study 3*

Nation	Photos Coded				Affect Measures			
	Legislative Body	Number of Legislators	Number of Photos Available	Number of Photos Coded (%)	University	Sample Size*	Percent Female	Mean Age (SD)
China	National People's Congress	2978	2566	643 (25.1)	Beijing Normal University	109	51.4	22.01 (2.37)
France	Senate, National Assembly	925	921	461 (50.1)	Paris V	143	90.2	20.86 (1.17)
Germany	Bundesrat, Bundestag	720	820	424 (51.7)	University of Hamburg	105	81.9	24.02 (3.94)
Hong Kong	Legislative Council	70	70	53 (75.7)	Chinese University of Hong Kong	94	50.0	20.36 (1.00)
Japan	House of Councillors	722	466	250 (53.6)	Kyoto University	208	38.6	19.20 (0.84)
Mexico	Senate, Chamber of Deputies	628	627	314 (50.1)	National Autonomous University of Mexico	139	46.0	20.64 (1.78)
South Korea	National Assembly	298	298	150 (50.3)	Seoul National University	136	47.8	20.48 (0.83)
Taiwan	Legislative Yuan	113	113	113 (100)	National Taiwan University	107	53.3	19.47 (0.95)
United Kingdom	House of Lords, House of Commons	1459	1457	729 (50.0)	Durham University	147	57.1	19.81 (1.16)
United States	Senate, House of Representatives	535	419	235 (56.1)	Stanford University	79	54.4	19.96 (1.20)

*Note.* \*included in analyses, excluding outliers and missing data.

Table 2

*Mean Levels of Actual and Ideal Affect and Mean Percentages of Photos with Any, Excited, and Calm Smiles*

Nation	Ideal		Actual		Proportion of Photos		
	HAP (SD)	LAP (SD)	HAP (SD)	LAP (SD)	Any Smile	Excited	Calm
China	3.05 (0.76)	3.75 (0.65)	2.50 (0.80)	3.08 (0.75)	.45	.03	.01
France	3.67 (0.60)	4.26 (0.52)	2.64 (0.58)	2.94 (0.67)	.90	.16	.07
Germany	3.41 (0.61)	4.37 (0.49)	2.79 (0.68)	3.48 (0.58)	.93	.21	.07
Hong Kong	3.20 (0.77)	3.94 (0.70)	2.50 (0.70)	2.89 (0.67)	.89	.08	.04
Japan	3.14 (0.65)	3.63 (0.71)	2.30 (0.62)	2.90 (0.71)	.76	.12	.04
Mexico	3.05 (0.60)	3.78 (0.75)	2.70 (0.58)	3.00 (0.77)	.66	.08	.05
South Korea	3.41 (0.56)	3.46 (0.71)	2.79 (0.63)	2.70 (0.65)	.89	.20	.01
Taiwan	3.35 (0.71)	3.84 (0.75)	2.61 (0.75)	2.77 (0.63)	.77	.07	.02
United Kingdom	3.50 (0.68)	3.98 (0.63)	2.48 (0.57)	2.92 (0.68)	.83	.21	.08
United States	3.79 (0.68)	3.94 (0.62)	2.94 (0.71)	3.04 (0.77)	.97	.26	.02



Table 3

*Zero-Order Correlations Among Variables of Interest*

Variable	1	2	3	4	5	6	7	8	9	10	11
1. Ideal HAP	1.00	0.46	0.57	0.03	.76*	.81**	0.28	0.59	.64*	0.65	.74*
2. Ideal LAP		1.00	0.22	.68*	0.42	0.29	.75*	0.22	0.24	0.43	0.60
3. Actual HAP			1.00	0.25	0.46	0.57	-0.11	0.29	0.25	0.04	0.24
4. Actual LAP				1.00	0.03	0.20	0.41	-0.08	-0.10	0.11	0.39
5. Any smile					1.00	.78**	0.38	.83**	.93**	.79*	0.54
6. Excited Smiles						1.00	0.33	.74*	.67*	0.66	.77**
7. Calm Smiles							1.00	0.46	0.25	0.42	.64*
8. Democracy Index								1.00	.85**	.71*	0.50
9. Human Development Index									1.00	.88**	0.42
10. GPD Per Capita										1.00	.71*
11. Individualism											1.00

\*  $p < 0.05$ , \*\*  $p < 0.01$ .

